Delaware SREC Procurement: Program Design in the Context of Industry Practice and Statutory Objectives

Presentation to the

Subcommittee of the Renewable Energy Task Force

New Energy Opportunities, Inc.

Consultant to the Delaware Public Service Commission

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Overview

- Review draft subcommittee SREC procurement program design in context of:
  - Applicable Delaware statutory provisions
  - Industry practice—what is being done in other states?
- Underlying premises:
  - There is much to be learned from experience in other states
  - Recommendations of the Renewable Energy Task Force should be based on:
    - Knowledge of industry practice in other states
    - Conditions in Delaware
    - The goals and constraints set forth in applicable Delaware legislation

Renewable Energy Task Force

- Purpose: to make recommendations about the establishment of trading mechanisms and other structures to support the growth of renewable energy markets in Delaware (Senate Substitute 1 for Senate Bill 119)
- Pertinent legislative criteria re SREC procurement:
  - Balanced market mechanism for SREC trading
  - Revenue certainty for investments in renewable energy technologies
    - Long-term contracts and auction mechanisms to be considered
  - Aggregation mechanisms and other devices to encourage renewables deployment with least impact on entities making retail electric sales
  - Cost minimization (1% trigger for SREC costs /retail electricity costs)
  - Design so that different scale solar PV investments are financially viable and cost-effective
  - Maximize in-state renewable energy generation and local manufacturing

Subcommittee Proposal: Key Features

- SREC procurement program scope
  - Delmarva Power share—standard offer service only—and DE Electric Cooperative
  - Long-term contracting—20 year term
  - Pilot: one year
- Four tiers based on project size
  - Allocation of SRECs to each tier
  - No SREC procurement for Tier 4 (2 MW and higher)—Dover Sun Park a factor
- Role of Sustainable Energy Utility ("SEU")
  - Administer procurement for Tiers 1 (up to 50 kW), 2 (to 500 kW) and 3 (to 2 MW)
  - Contracting party for Tiers 1-3, with resale to utilities (Tier 4—utility responsibility)
- Procurement structure
  - Administratively determined prices for Tier 1 and Tier 2
  - Competitive bidding (price only) for Tier 3

Subcommittee Proposal: Key Features Continued

- Price—20-year term with 5:1+ frontloading
  - Tier 1: $290 for 1st 10 years; $50 for 2nd 10 years
  - Tier 2: $270 for 1st 10 years; $50 for 2nd 10 years
  - Sellers get benefit of 2 10% SREC multipliers (in-state manufacturing/installation)
- Delmarva Power SOS procurement by tiers
  - Tier 1: 3,464 SRECs (20%)
  - Tier 2: 6,062 SRECs (35%)
  - Tier 3: 7,794 SRECs (45%)
  - Tier 4: 0 SRECs (0%)
- Use of standard contracts; back-to-back sales to utilities
- Residential host can't be seller
- Eligibility, bid deposit, other terms and conditions

Long-Term Contracts and Financing of Renewable Energy Projects

- REC and SREC market prices, at least during early RPS years, were high in a number of states with competitive retail markets
- The lack of long-term contracts made financing difficult resulting in a shortage and a higher risk premium for developers
- A number of states initiated long-term contracting programs
  - Connecticut (Project 150)
  - Massachusetts (Green Communities Act chapter 83)
  - New York—NYSERDA (started at beginning of RPS)
  - New Jersey—SREC procurement program for 3 utilities (including Delmarva Power affiliate, Atlantic City Electric)
  - Pennsylvania— utility SREC procurement for default service (recent)
- RPS States without competitive retail markets have ongoing utility long-term contracting programs for bundled products

Tiers; Competitively Determined vs. Administratively Determined Pricing

- SRECs conceptually represent the difference between the cost to build & operate a solar PV project minus the energy and capacity value of the project—the renewable premium
- SRECs are a market-oriented approach to embody the renewable premium of solar PV projects
- Procurements for SRECs/RECs are mostly market-oriented; more broadly, programs to incent solar vary considerably
- Project size and relationships to other incentives—grants, net metering, etc.—are economic factors
- Other states have considered similar issues as Delaware in designing programs pertaining to solar/SREC procurement

New Jersey SREC Procurement

- 3 utilities procure SRECs in a single process with a solicitation manager
- Two segments:
  - up to 50 kW (up to now, eligible for grants)
  - up to 500 kW (not eligible for grants)
- Projects must be interconnected w/ NJ distribution system (RPS)
- Aspirational goal that 25% of projects be up to 50 kW in size
- Prices are competitively bid; the utilities are the contracting parties
- Term: 10 to 15 year contracts; utilities resell SRECs (don't retire them)
- Standard contracts-SREC only
- Results: mixed; uneven participation with some under-subscription
  - 20.5 MW of solar PV projects—average price of 10-year contracts over $400
  - High SREC spot prices--~$600, interconnection issues?

Pennsylvania SREC Procurement

- PA PUC issues final policy statement in September 2010 after receiving comments on a proposed policy statement in December 2009
- Utilities to enter into long-term SREC contracts (5-20 years) to remove barrier of price uncertainty for solar project development;
- Utilities to procure SRECs from large-scale solar projects—200 kW and larger—through competitive RFP process
- Utilities to procure SRECs from small projects (less than 200 kW) by:
  - RFP process (competitively bid); or
  - Bilateral contracts at prices not to exceed Commission-approved average winning bid price in most recent RFP for large-scale projects
- Standardized contracts to be developed
- PECO RFP results (March 2010): 10-year contracts for 80,000 SRECs/year at average price of $256.57 (proposals: 300 SREC/year minimum)

Maryland SREC Procurement

- SREC procurement as part of SOS generally on a spot market basis
- Stakeholder working group to address renewables procurement approach (as part of Procurement Improvement Process)
- The Solar Alliance (Aug. 2010) suggests review of:
  - NJ RFP results—10-year SREC purchases
  - PECO SREC RFP results
  - Market data SREC costs
  - Alternative Compliance Payment costs
- MD RPS rule
  - If an electricity supplier purchases SRECs directly from a solar PV on-site generator, the contract term may not be less than 15 years
  - If the on-site solar PV's capacity is 10 kW or less, the electricity supplier shall purchase the SRECs by a single upfront payment

California IOU Solar PV Procurement

- CA RPS: California Public Utilities Commission requires 3 major IOUs to conduct annual procurements for PPAs for bundled energy and RECs
- Renewable projects of up to 1.5 MW entitled to PPA at avoided cost rate that is administratively determined (long-term cost of gas plant—MPR)
- Southern California Edison Company:
  - Renewable Standard Contract program—up to 20 MW
    - 2009: at MPR rate (10-20 year contracts)
    - 2010—competitively bid—price only (10-20 year contracts)
  - Solar PV Program—mostly rooftops: 0.5 to 2.0 MWs—competitively bid (price only)
- CPUC Renewable Auction Mechanism/RAM (Dec. 2010)—up to 20 MW
  - Standardized contracts
  - Competitively bid; administratively determined prices (feed-in tariff) rejected

RAM: Rationale for Competitive Bidding Over Administratively-Determined Pricing

- Lowering transaction costs: buyer, seller, regulator
  - RAM: no negotiations over price or contract terms and conditions
  - Cost to determine appropriate price vs. cost savings in not bidding
- Prices that are financeable to developers but minimize ratepayer costs
  - Administratively-determined prices can be too high or too low
  - Potential cost savings from competition
- Ability to respond quickly to market changes
  - Bidding is superior
  - Significant changes in costs can occur following administrative determinations
- Promoting the development of long-term sustainable market
  - Prices set too high can result in hostility to solar development
  - Prices set too low can result in insufficient financing and construction of projects

RAM: Project Viability/Threshold Requirements

Purpose of threshold requirements and seller performance/security obligations is to minimize contracting with non-viable projects

- Demonstration of site control upon submitting bid
- Developer experience
- Commercialized technology
- Filed interconnection application prior to bid submission
  - Utilities in advance of auctions to identify preferred locations
  - Utilities to update information monthly
- Ability of project to be operational within 18 months of contract approval
- Project milestones identified

RAM: Standard Contract Terms

- On-line performance obligation:
  - 18 months to make commercial operation
  - Maximum 6-month extension
- Project development security
  - Projects up to 5 MW: $20/kW: $40,000 for 2 MW project
  - 5-20 MW projects: $60/kW: $600,000 for 10 MW project
- Operational period security
  - Projects up to 5 MW: $20/kW
  - 5-20 MW projects: 5% of expected contractual revenues
- Operational performance obligation
  - 70% of expected production
  - Averaged over 2 years

Other California Solar PV Programs: California Solar Initiative and Net Metering

- California Solar Initiative ("CSI"): rebate program
  - 1 kw to 1 MW: residences and businesses
  - Administered by 3 IOUs
  - Goal to produce 3,000 MW by 2017
  - Step process: declining rebate or performance payment by application type once quota is filled for an application type (e.g., existing commercial)
  - Net metering allowable with CSI incentives
- RPS, RAM, SCE RSC and SCE SPVP competitive procurements and 1.5 MW MPR-based tariff
  - Net metering not permissible
  - Can't access CSI rebates

States with Administratively Determined Pricing for Solar PV (no competitive retail markets)

- Feed In Tariffs (Energy and RECs)
  - Vermont (FIT statute): $240/MWh for solar PV (up to 2.2 MW)—25-year contract
    - State tax credit; no grants
  - Hawaii—20-year contracts for solar PV; no net metering; state tax credit
    - Tier 1—less than 20 kW--$218/MWh
    - Tier 2—up to 500 kW--$189/MWh
    - Tier 3—up to 5 MW on Oahu—not yet determined
- Colorado: Xcel Energy—current step pricing by tier (as of 1/4/2010)
  - Customer-owned systems up to10.0 kW: $2.35/W upfront
  - Third-party-owned systems up to 10 kW DC: $60/MWh over 20 years + rebate ($2.00/W)
  - Customer- or 3rd-party-owned systems up to 100 kW : $25/MWh (20 yrs) + rebate
  - Customer- or 3rd-party-owned systems up to 500 kW: $35/MWh (20 yrs) + max. $200,000 rebate
  - Customer- or 3rd-party-owned systems > 500 kW: determined through competitive bidding

*Note: Pricing in different states may not be comparable due to differences in product (bundled vs. SREC), insolation (capacity factor), state tax rates/credits/grants/rebates,/property taxes, availability of net metering and other factors

Proposed Program Features in Context of Industry Practice and Legislative Objectives: 20-Year SREC Contracts

- Strong industry practice supporting long-term contracts
- 20-year contracts within typical range of 10-25 years
- Consistency with legislative objectives:
  - Revenue assurance for developer/sellers
  - Cost minimization
    - Longer term can provide for lower annual costs
    - Renewable premium can be amortized over a longer period
    - May facilitate longer debt financing period for developers
  - Lower costs should minimize contribution to reaching of 1% SREC trigger as percentage of retail energy costs

Proposed Program Features in Context of Industry Practice and Legislative Objectives: Tiering

- Tiering in the context of industry practice:
  - SRECs in retail competition states: practice varies
    - Definition of tiers;
    - Procurement rules re competitive bidding/contracting
  - RPS states with utility procurements for bundled energy and RECs
    - Procurements/programs are often segmented/tiered
    - Provisions against "double dipping"
  - 4 tiers is a large # relative to industry practice
- Consistency with legislative objectives:
  - Pros
    - Fosters development of different scale solar PV investments (but not largest)
    - Maximize in-state renewable energy generation and local manufacturing
  - Cons
    - Smaller projects have higher costs
    - Might cause reaching 1% cost trigger sooner

Proposed Program Features in Context of Industry Practice and Legislative Objectives: Bid vs. Administratively Determined Pricing

- Industry practice:
  - SREC procurements in retail competition states:
    - Competitive procurement is the norm
    - Smaller projects can get other benefits (rebates/net metering/use of RFP results for pricing)
  - RPS states with utility procurements for bundled energy and RECs
    - Competitive procurement is the norm for "larger projects" (definition varies)
    - Administratively determined prices is not uncommon for "smaller projects" (definition varies)
- Consistency with legislative objectives: Administratively determined pricing for projects up to 500 kW (rather than competitively bid pricing)
  - Is it a market mechanism?
  - Impact on costs and benefits to ratepayers, industry participants, hosts, buyers, state agencies?
  - If administratively determined pricing is desired, are the proposed prices appropriate?

Proposed Program Features in Context of Industry Practice and Legislative Objectives: Frontloaded Pricing

- Industry practice:
  - Frontloaded SREC pricing is rare, especially to the degree proposed
  - Pricing is normally flat or escalating
  - Reasons:
    - Want strong performance incentive over the entire contract term
    - Desire not to aggravate rate impacts in near term
- Consistency with legislative objectives:
  - Pros
    - Higher prices in first 10 contract years provide more revenue certainty for sellers
  - Cons
    - Higher costs in early years: might cause reaching 1% trigger sooner than necessary
    - Minimizes performance incentives in contract years 11-20

Proposed Program Features in Context of Industry Practice and Legislative Objectives: Role of the SEU

- Industry practice:
  - Third-party procurement administrators are uncommon but not unprecedented (NJ)
  - Government-sponsored procurement has been conducted in limited circumstances
    - MA Technology Collaborative's Green Power Partnership Program (utilities unwilling to contract long term)
    - NYSERDA REC procurements under the New York RPS (NYSERDA was well-established state authority)
    - VT: state-appointed entity is contracting party for 20 utilities under PURPA/buyer of last resort under FIT
  - MA: state agency coordinates joint utility RFP—utilities evaluate bids and sign PPAs
- Consistency with legislative objectives:
  - Pros
    - The SEU as an aggregation mechanism; potential benefits of enhanced banking
    - Could reduce effort required by utilities
  - Cons
    - Absent backstopping by utilities, a long-term contract with the SEU may raise issues of financeability or costs of financing for developers
    - Impact on costs unclear; may add to legal, administrative and perhaps SREC costs

Proposed Program Features in Context of Industry Practice and Legislative Objectives: Threshold Requirements and Security Deposits

- Industry practice:
  - Threshold/viability standards and security deposits established to minimize risk of non-viable projects
  - Unclear what is being proposed—more work needed
- Consistency with legislative objectives:
  - Want to deter proposals/selection of proposals that have low likelihood of success
  - Want costs to be at a reasonable level

Proposed Program Features in Context of Industry Practice and Legislative Objectives: Standard Contracts

- Industry practice:
  - Standardized contracts, with no or minimal negotiation, will expedite procurement
  - Non-negotiable price bidding or FIT pricing will expedite procurement
  - Drafting standard contracts, particularly with multiple utilities/buyers, will take time
- Consistency with legislative objectives:
  - Want ability to remove “deadwood” projects; allow for viable projects to go forward
  - Want costs to be at a reasonable level

Other Questions

- Eligible applicants—exclusion of homeowners/small project owners
- Criteria for determining project size
- Relationship between host and applicant and SREC contract
  - Survivability of SREC contract if the SEU terminates contract with aggregator
  - Must host be paid by aggregator over time for SRECs?
- Independent Monitor ("IM") and role:
  - Selection/contracting process
  - Reporting relationship and treatment of confidential information
- Procurement/contracting roles and costs:
  - SEU role; retention of procurement manager(s) and IM; budget for procurements, including legal costs; mechanism for compensating the SEU
  - Who will oversee/administer/enforce SREC contracts? What are the associated costs?
- Ongoing role of the Task Force